

WHAT IS CLAIMED IS:

1. A method for estimating interconnect delay, the method comprising:

determining inductance of an interconnect;

5 determining a transfer function using the inductance;

determining at least two poles of the transfer function;

10 estimating an interconnect response using the two poles; and

estimating an interconnect delay from the interconnect response.

2. The method of Claim 1, further comprising:

15 determining a damping case from the two poles; and

estimating the interconnect delay according to the damping case.

3. The method of Claim 1, further comprising:

20 determining an overdamped case from the two poles; and

estimating the interconnect delay using one pole.

4. The method of Claim 1, further comprising:

25 determining an underdamped case from the two poles; and

estimating the interconnect delay by:

computing a first delay using an Elmore delay;

and

30 computing a second delay using the first delay as a value for a time variable.

5. The method of Claim 1, further comprising:
determining an underdamped case from the two poles;
and

estimating the interconnect delay by repeating the
5 following:

computing a current delay; and

computing a next delay using the current delay
as a value for a time variable, until a difference
between the current delay and the next delay is within a
predetermined range.

6. The method of Claim 1, further comprising:
determining a critically damped case from the two
poles; and

estimating the interconnect delay by:

computing a first delay using an Elmore delay;

and

computing a second delay using the first delay
as a value for a time variable.

7. The method of Claim 1, further comprising:
determining a critically damped case from the two
poles; and

estimating the interconnect delay by repeating the
25 following:

computing a current delay; and

computing a next delay using the current delay
as a value for a time variable, until a difference
between the current delay and the next delay is within a
predetermined range.

8. A system for estimating interconnect delay, the system comprising:

a memory operable to store information about an interconnect; and

5 a processor coupled to the memory operable to:

determine an inductance of the interconnect from the information;

determine a transfer function using the inductance;

10 determine at least two poles of the transfer function;

estimate an interconnect response using the two poles; and

15 estimate an interconnect delay from the interconnect response.

9. The system of Claim 8, wherein the processor is operable to:

determine a damping case from the two poles; and

20 estimate the interconnect delay according to the damping case.

10. The system of Claim 8, wherein the processor is operable to:

25 determine an overdamped case from the two poles; and estimate the interconnect delay from one pole.

11. The system of Claim 8, wherein the processor is operable to:

determine an underdamped case from the two poles;
and

5 estimate the interconnect delay by:

computing a first delay using an Elmore delay;
and

computing a second delay using the first delay
as a value for a time variable.

10

12. The system of Claim 8, wherein the processor is operable to:

determine an underdamped case from the two poles;
and

15 estimate the interconnect delay by repeating the
following:

computing a current delay; and

computing a next delay using the current delay
as a value for a time variable, until a difference
between the current delay and the next delay is within a
predetermined range.

20

13. The system of Claim 8, wherein the processor is operable to:

25 determine a critically damped case from the two
poles; and

estimate the interconnect delay by:

computing a first delay using an Elmore delay;
and

30 computing a second delay using the first delay
as a value for a time variable.

14. The system of Claim 8, wherein the processor is operable to:

determine a critically damped case from the two poles; and

5 estimate the interconnect delay by repeating the following:

computing a current delay; and

10 computing a next delay using the current delay as a value for a time variable, until a difference between the current delay and the next delay is within a predetermined range.

005444-44500

15. Logic for estimating interconnect delay encoded on media, the logic operable to:

determine inductance of an interconnect;

determine a transfer function using the inductance;

5 determine at least two poles of the transfer function;

estimate an interconnect response using the two poles; and

10 estimate an interconnect delay from the interconnect response.

16. The logic of Claim 15, the logic operable to:

determine a damping case from the two poles; and

15 estimate the interconnect delay according to the damping case.

17. The logic of Claim 15, the logic operable to:

determine an overdamped case from the two poles; and

estimate the interconnect delay using one pole.

18. The logic of Claim 15, the logic operable to:

determine an underdamped case from the two poles;

and

estimate the interconnect delay by:

25 computing a first delay using an Elmore delay;

and

computing a second delay using the first delay as a value for a time variable.

19. The logic of Claim 15, the logic operable to:
determine an underdamped case from the two poles;
and

5 estimate the interconnect delay by repeating the
following:

computing a current delay; and

computing a next delay using the current delay
as a value for a time variable, until a difference
between the current delay and the next delay is within a
predetermined range.

10

20. The logic of Claim 15, the logic operable to:
determine a critically damped case from the two
poles; and

15

estimate the interconnect delay by:

computing a first delay using an Elmore delay;

and

computing a second delay using the first delay
as a value for a time variable.

20

21. The logic of Claim 15, the logic operable to:
determine a critically damped case from the two
poles; and

25

estimate the interconnect delay by repeating the
following:

computing a current delay; and

computing a next delay using the current delay
as a value for a time variable, until a difference
between the current delay and the next delay is within a
predetermined range.

30

22. A system for estimating interconnect delay, the system comprising:

an inductance module operable to determine inductance of an interconnect;

5 a transfer function module operable to determine a transfer function using the inductance;

a processor operable to:

determine at least two poles of the transfer function;

10 determine a damping case from the two poles, the damping case comprising an overdamped case, an underdamped case, and a critically damped case;

a response module operable to estimate an interconnect response using the two poles; and

15 a delay module operable to:

estimate the interconnect delay from one pole, if the damping case is the overdamped case;

estimate the interconnect delay by:

20 computing a first delay using an Elmore delay; and

computing a second delay using the first delay as a value for a time variable, if the damping case is the underdamped case or the critically damped case.